

E39
Y3L
1940

ILLINOIS CONSERVATION ACTIVITIES MANUAL *for* 4-H CLUB MEMBERS



THE LIBRARY OF THE
OCT 6 1942
UNIVERSITY OF ILLINOIS

Extension Service in Agriculture and Home Economics
University of Illinois, College of Agriculture
Urbana, Illinois
In Cooperation with Illinois State Natural History Survey

February 1938

Natural History Survey
Library

639

Instructions 1/36
Cover Material
Index 1940

Foreword

Conservation is a new activity in the 4-H Club program. In the three years since it was first offered it has found increasing favor. Like the other activities in the 4-H Club program, it cannot be carried alone. Those interested must be regularly enrolled with a project in a 4-H Club.

The conservation activity affords every 4-H Club member a fine opportunity to get acquainted with the objects and creatures of nature which live in his community. The trees, shrubs, and wild flowers, the fur bearers and upland game, the song birds, the water fowl, the fish in the stream, pond or lake, and the fertile soil, all hold secrets which are interesting to know. To learn to know more about these interesting things is indeed a pleasure.

This circular is a manual to guide the 4-H member interested in a study of wildlife and its conservation. Sixty free camp scholarships will be awarded to the members who make the best record of accomplishment in this field. in the state by July 15. There are also scholarships for leaders whose clubs have the most outstanding records in this activity. See your county farm adviser for report blanks.

24 m 43

6 Oct 27

THE LIBRARY OF THE
OCT 6 1942
UNIVERSITY OF ILLINOIS

Table of Contents

	<u>Page</u>
Introduction	1
Cover Management	1
Refuge Cover	2
Building up Deficient Cover.	2
Brush and Corn Shocks.	2
Rolls of Old Wire Fence.	2
Grain Patches.	3
Lopped-Over Trees.	3
Eliminating Grazing from Woodlots.	3
Fencing Thickets	4
Planting Game Cover.	4
Shrubs and Trees for Wildlife Plantings.	4
Obtaining Planting Stock	5
Planting Methods	5
When to Plant.	7
Nesting Cover.	7
Flushing Bars.	8
Hayfield Nests	9
Ditch Banks as Nesting Places.	9
Miscellaneous Nesting Places	9
Spring Burning Destroys Nests.	9
Winter Food.	9
Feed Patches	10
Artificial Feeders	10
Corn Racks	10
Nail Keg Hoppers	10
Water Requirements	10
Fur-Bearers and Small Game Mammals	11
Muskrats	11
Care of Skins.	11
Coons.	11
Minks.	14
Skunks	14
Possums.	14
Squirrels.	14
Rabbits.	14
Woodchucks	14
Making a Cover Map	14
Wildlife Census.	16
Predatory Birds and Mammals.	16
Hawks and Owls	16
Mouse Hawks.	19
Falcons.	19
Bird Hawks	19

Table of Contents (cont.)

	<u>Page</u>
Marsh Hawks	19
Fur Bearers	21
Cats.	21
Bird Nesting Boxes.	21
Habits of Wildlife.	21
Record of Game and Fur Bearers.	22
Suggested Seasonal Conservation Activities.	25
Winter.	25
Spring.	25
Summer.	26
Fall.	26
Publications.	26

Landowners may not agree with the conservation program, but management of game and fur, as of domestic livestock, requires agreement and attention to the needs of the animals. By engaging in the 4-H Club conservation activities program, members have an opportunity to bring up a new phase of land management.

Wildlife production can be adapted to the regular farm practice by using one of the animal spots and small, undesirable crops found on farms throughout the state. The present estimated annual income of more than \$1,000,000 in Illinois suggests that the sale of new stock is an example of profitable use of waste space on agricultural lands. The purpose of this manual is to point out some of the practical things that 4-H Club members can do to increase wildlife.

Among the most important requirements of farm wildlife from the standpoint of management are cover, food, and water. Game and fur animals are dependent on these factors. When any one of these factors is lacking, wildlife production is no longer profitable on the land. The nesting, food, and cover needs of various kinds of wildlife differ somewhat, yet, to a considerable extent, improvement of these conditions for one species benefits others. Right changes in farm practice to provide food at certain seasons and to establish cover in waste places will usually benefit many game birds as well as fur-bearing.

Cover Requirements

Game and fur growth and number of birds are based on cover by many kinds of wild creatures. This type of cover is used by birds and mammals to escape enemies, to shelter young, and to save energy by giving protection from storms. Brushy cover, when thin, can be improved by adding such temporary cover as brush piles and corn shocks.

Table of Contents (cont.)

Page

19	Marsh Hawk
21	Tree Toad
21	Great Horned Owl
21	Red-winged Blackbird
21	Habitat of White-throated Sparrow
22	Record of Eggs and Young
22	Suggested Seasonal Conservation Activities
22	Winter
22	Spring
22	Summer
22	Fall
22	Exhibitions

CONSERVATION ACTIVITIES MANUAL^{1/}

for

Illinois 4-H Club Members

Introduction

The subject of management of upland wildlife has received considerable attention in recent years. This has been the result, largely, of increasing appreciation of the value of birds and mammals from the standpoint of enjoyment, aid in control of crop enemies, and, in the case of fur and frequently of game, as a saleable crop.

Game, fur-bearers, and insectivorous birds will often repopulate farmlands where they are now absent with but slight encouragement. Nevertheless, management of game or fur, as of domestic livestock, requires experience and attention to the needs of the animals. By engaging in the 4-H Club conservation activities program, members have an opportunity to train for a new phase of land management.

Wildlife production can be adapted to the regular farm program by making use of the eroded spots and small, inaccessible areas found on farms throughout the state. The present estimated annual income of more than \$1,000,000 to Illinois trappers from the sale of raw furs is an example of profitable use of waste spaces on agricultural lands. The purpose of this manual is to point out some of the practical things that 4-H Club members can do to increase useful wildlife.

Among the most important requirements of farm wildlife from the standpoint of management are cover, places to nest and rear young, and a year-round food supply. When one or more of these factors is lacking, wild creatures can no longer live permanently on the land. The nesting, food, and cover needs of various kinds of wildlife differ somewhat, yet, to a considerable extent, improvement of these conditions for one species benefits others. Slight changes in farm practice to provide food at certain seasons and to establish cover in waste places will usually benefit song and game birds as well as fur-bearers.

Cover Management

Dense shrub growth and tangles of vines are used for cover by many kinds of wild creatures. This type of cover is used by birds and mammals to escape enemies, to shelter young, and to some extent to give protection from storms. Brushy cover, when thin, can be improved by adding such temporary cover as brush piles and corn shocks.

^{1/} By Dr. Ralph E. Yeatter, Game Specialist, Illinois State Natural History Survey. Illustrations prepared by Dr. Carl Mohr, Associate Entomologist, Illinois State Natural History Survey.

for

Illinois 4-H Club Members

Introduction

The subject of management of upland wildlife has received considerable attention in recent years. This has been the result, largely, of increasing appreciation of the value of birds and mammals from the standpoint of enjoyment, aid in control of crop enemies, and, in the case of fur and trophy of game, as a valuable crop.

Game, fur-bearing, and insectivorous birds will often repopulate farm-lands where they are now absent with but slight encouragement. Nevertheless, management of game or fur, as of domestic livestock, requires experience and attention to the needs of the animals. By engaging in the 4-H Club conservation activities program, members have an opportunity to train for a new phase of land management.

Wildlife production can be adapted to the regular farm program by making use of the eroded spots and small, inaccessible areas found on farms throughout the state. The present estimated annual income of more than \$1,000,000 to Illinois farmers from the sale of venison is an example of profitable use of waste spaces on agricultural lands. The purpose of this manual is to point out some of the practical things that 4-H Club members can do to increase useful wildlife.

Among the most important requirements of farm wildlife from the standpoint of management are cover, places to nest and rear young, and a year-round food supply. When one or more of these factors is lacking, wild creatures can no longer live permanently on the land. The nesting, food, and cover needs of various kinds of wildlife differ somewhat, yet, to a considerable extent, improvement of these conditions for one species benefits others. Slight changes in farm practice to provide food at certain seasons and to establish cover in waste places will usually benefit song and game birds as well as fur-bearers.

Cover Management

Dense shrub growth and tangles of vines are used for cover by many kinds of wild creatures. This type of cover is used by birds and mammals to escape enemies, to shelter young, and to some extent to give protection from storms. Brushy cover, when thin, can be improved by adding such temporary cover as brush piles and corn shocks.

Grassland is important to both birds and mammals for nesting cover. Field crops are also used to a considerable extent for nesting places and for hiding young. Brushy cover, or refuge cover and nesting cover, is discussed in the following sections.

Refuge Cover

Quails and many other kinds of wildlife instinctively avoid crowding together in limited areas, preferring to establish territories where they can feed and take cover without too much competition from others of their kind. To develop farmland fully for these birds, shrub cover should be well distributed over the farm. However, quails are constantly on guard against enemies and seldom range far from hedges or other cover areas. Therefore, when a particular part of the farm is to be improved for quails, the cover areas—shrubbery, brush piles, and corn shocks—should not be more than 250 yards apart.

As further illustration of the requirements of quails, let us consider a 120-acre farm that normally has two coveys of these birds in winter. One covey ranges along an overgrown hedge and an adjacent roadside where clumps of hawthorn furnish places of refuge while the birds feed in nearby fields. The other covey has its headquarters an eighth of a mile away in an unused orchard partially grown up to blackberries. It frequents also the willow-grown back of a nearby drainage ditch and a short brushy fencerow. Each area usually furnishes sufficient food and cover to winter a covey of eight or ten quails. Since no other well-developed cover areas exist on the farm, there is little likelihood that these birds will establish other coveys here. Neither is it likely that the resident coveys will become permanently larger unless the farmer follows some such practice as adding brush piles or unhusked corn shocks to each covey territory in winter, thus enlarging the cover and food capacity of the area.

Migration, natural enemies, hunting, and winter food shortage are factors that help hold down wildlife populations to what is sometimes called the carrying capacity of the farm land. When a larger stock of game or fur-bearers is produced than the area can support through the winter, this surplus can usually be safely harvested in the fall without reducing the breeding stock.

Building up Deficient Cover

Brush and Corn Shocks.—Where brushy cover is limited, corn shocks and brush piles may be used to supplement it. For example, a fencerow that has a few small clumps of wild plum or hawthorne may be improved sufficiently by adding two or three fair-sized brush piles or half a dozen corn shocks so that quails, rabbits, or pheasants will use it during the winter. Corn shocks should

be open at the bottom so quails can use them for shelter or to escape enemies (Fig. 1).



Fig. 1

Rolls of Old Wire Fence.—Piles of discarded wire fence are frequently used by quails and rabbits as emergency cover areas.



THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

THESE ARE THE
REMARKS OF THE
COMMISSIONER OF THE
LAND OFFICE

Planting a wild grape or bittersweet close, so the vine will overgrow the wire, will increase cover and furnish dried fruit for winter food (Fig. 6).

Grain Patches.—Planting small grains or grain mixtures in patches is recommended as a means of increasing cover as well as food. The location of the patches is important. As far as possible, they should be planted close to hedges or thickets or between other cover areas to serve as travel lanes. Each patch should include at least $1/4$ acre and should be on a site that can be planted every year if the planting proves especially useful to wildlife. Usually long narrow patches are more attractive than square ones. However, fence corners may be used if other space is not available. A brush pile or a few open corn shocks will increase the cover value of the patch for wildlife.

Broomcorn, especially the Dwarf evergreen variety,^{1/} has been found excellent in central Illinois and will probably be satisfactory anywhere in the state. It bends over in winter, forming excellent cover, and holds its seed well.

Lopped-Over Trees.—Another method of improving thin cover is to sever partially and push over small worthless trees. If part of the bark and a fair amount of sapwood are left unsevered, certain kinds of trees, as osage orange, scrub oak, and willow, sprout and make excellent ground cover. Where possible the tops of two or three of these trees should be felled together, and three or more of these cover "islands" should be established not over 250 yards apart. If this is done in winter the trees are more likely to live.

When wild grapes or other climbing vines are already growing on these trees or nearby, they should not be severed but allowed to overrun the tops. If the lopped-over trees die, wild grapes should be planted near them (Fig. 2). Wild grape vines growing without any supporting structure can be used as cover if piles of weather-resisting brush, such as osage orange, are made nearby for the vines to climb on.

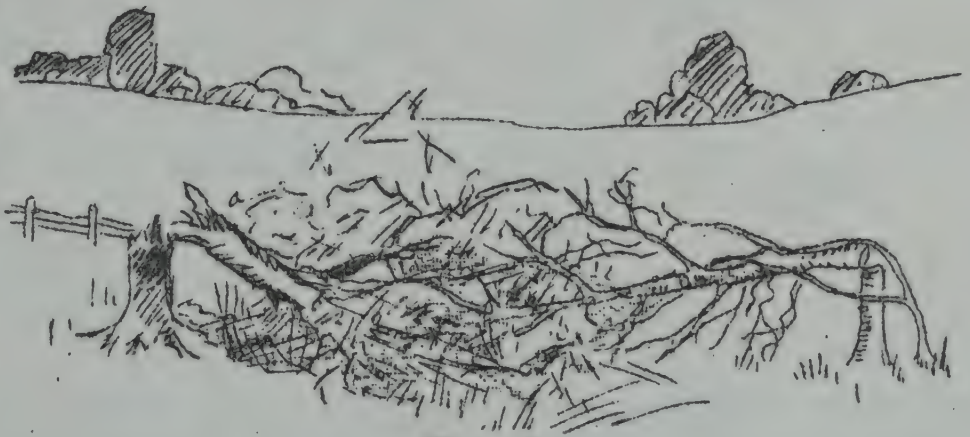


Fig 2.

Eliminating Grazing from Woodlots.—Grazing of woodlots destroys undergrowth, which not only prevents reproduction of trees but makes the woods almost worthless for game and furbearers. Woodlots should be fenced against grazing wherever possible. If this cannot be done, corners or small areas in the woods can be fenced off at reasonable expense. These furnish game with excellent cover.

^{1/} Use of dwarf broom corn in feed patches for winter birds and game was recommended to the writer by Dr. J. J. Pieper, Agronomy Department, University of Illinois.

It is a very common mistake to think of the bird as a single individual. It is not. It is a group of individuals, each of which is a bird. (p. 10)

The bird is a very common mistake to think of the bird as a single individual. It is not. It is a group of individuals, each of which is a bird. (p. 10)

The bird is a very common mistake to think of the bird as a single individual. It is not. It is a group of individuals, each of which is a bird. (p. 10)

The bird is a very common mistake to think of the bird as a single individual. It is not. It is a group of individuals, each of which is a bird. (p. 10)

The bird is a very common mistake to think of the bird as a single individual. It is not. It is a group of individuals, each of which is a bird. (p. 10)

The bird is a very common mistake to think of the bird as a single individual. It is not. It is a group of individuals, each of which is a bird. (p. 10)

The bird is a very common mistake to think of the bird as a single individual. It is not. It is a group of individuals, each of which is a bird. (p. 10)

Fencing Thickets.--Thickets of plum and hawthorn that have been heavily grazed will gradually develop excellent cover if the thicker parts are fenced. Two or three patches perhaps 40 feet long and half as wide, can be fenced at small cost. If these are located close to fields where unhusked corn, feed patches, or other food is available in winter, they will probably attract several kinds of wildlife. Brush piles and corn shocks can be placed in these fenced areas to increase their value until the thicket becomes dense.

Planting Game Cover

In planning a long-time wildlife management program, it is advisable to plant certain small areas to food- and cover-producing shrubs. Although brush piles, corn shocks, and feed patches aid temporarily, they need to be renewed periodically. Insect-eating birds attracted by small planted areas will help effectively to combat insect pests.

If areas are planted to shrubbery for erosion control and landscape beautification, as well as for attraction of wildlife, land values may be increased. Areas containing gullies, washes, corners, ditch banks, old dooryards, old orchards, and worked-out gravel pits can be used for these plantings.

As far as possible, areas for planting should be chosen where they will not be pastured. It will always be necessary, however, to exclude grazing livestock if good quality cover is to be maintained. If surrounding fields are to be pastured the plots should be fenced before planting is done.

The following trees and shrubs are especially useful for wildlife plantings in Illinois.

Shrubs and Trees for Wildlife Plantings

Group 1.--Tall shrubs

Wild plum
Hawthorn
Hazel

Osage orange
Tall wild rose

Group 2.--Border shrubs

Blackberry
Coralberry (or buckbrush)

Gray dogwood
Elderberry

Group 3.--Vines

Wild grape
Bittersweet

Green briar

Group 4.--Fruit bearing trees

Wild cherry

Mulberry

Group 5.--Trees for gully control

Black locust

In planting a small plot, such as a fence corner, the outer portion, or about one-half of the area should be planted to low border shrubs and the inside portion to taller shrubs, group 1 (Fig. 4).

If an area the size of an old dooryard is planted, it is preferable to leave about half of the space in grass to provide nesting places, and plant the remainder to shrubs (Fig. 8).

Gullies should be planted to black locust, spacing the trees 4 feet by 4 feet, with some of groups 1, 2, and 3 around the edges (Fig. 7).

The climbing vines (group 3) and blackberries are especially useful for game bird cover, since they form dense thickets or tangles which are impenetrable to many enemies of game. Grapes or other vines can be planted and allowed to run over brush piles, rolls of old wire fence, or other supports (Fig. 6).

Obtaining Planting Stock

The Illinois State Department of Conservation is now producing in its nursery several kinds of cover-producing shrubs which, according to present plans, are to be distributed free for wildlife plantings. The following are, or soon will be, available in quantities: wild plum, hazel, elder, and wild cherry. Others probably will be added to this list. Besides those, black locust, Scotch and red pines, all useful to wildlife, are obtainable from the Department of Conservation at low cost. Cost of transportation must be paid by the cooperator. Inquiries should be addressed to Mr. A. J. Tomasek, State Forester, Department of Conservation, Springfield, Illinois.

Several combinations of shrubs for planting on various sites are shown in Figures 4, 7, and 8.

Planting Methods

Shrubs can be planted rapidly by the methods outlined below.^{1/} If planting is done early in the spring and ordinary care used, a fairly high survival usually results. During years of rainfall scarcity, however, losses may be sufficient to require replanting the following spring.

It is not necessary to plow areas to be planted to wildlife cover. If the planting site is grassy, the sod is removed with spade or shovel from spots about 18 inches square and a shrub planted in the middle of each spot (Fig. 3A). As a rule, not more of these sodless or "scalped" spots should be prepared than can be planted during the following half day, to prevent too much drying of the soil. The "scalped" spot usually remains bare for months giving the shrub a chance to become established.

On areas of 1/10 acre or less, shrubs are usually spaced every 4 feet in rows 4 feet apart. It is not necessary to space carefully, since these areas are seldom cultivated. The holes should be made so that shrubs in one row are planted halfway between those in the rows next to it.

On level land, shrubs may be planted in shallow furrows. When furrows are used the shrubs should be planted in the furrow next to the inner side (Fig. 5).

^{1/} Further information on tree planting will be found in Illinois Agricultural Experiment Station Circular 477, "Forest Planting on Illinois Farms," by J. E. Davis, Extension Forester, U. of I. College of Agriculture and Illinois State Natural History Survey.

1. The first step in the process of the investigation is the identification of the problem. This is done by the investigator who is responsible for the study. The problem is then defined in terms of the objectives of the study.

2. The second step is the design of the study. This involves the selection of the sample, the choice of the variables to be measured, and the determination of the methods to be used for data collection and analysis.

3. The third step is the collection of data. This is done by the investigator who is responsible for the study. The data is then analyzed and the results are reported.

4. The fourth step is the interpretation of the results. This involves the comparison of the results with the objectives of the study and the drawing of conclusions. The investigator who is responsible for the study is then responsible for the interpretation of the results.

5. The fifth step is the reporting of the results. This is done by the investigator who is responsible for the study. The results are then reported in a report or a paper.

6. The sixth step is the evaluation of the study. This involves the assessment of the quality of the study and the drawing of conclusions. The investigator who is responsible for the study is then responsible for the evaluation of the study.

7. The seventh step is the dissemination of the results. This is done by the investigator who is responsible for the study. The results are then disseminated to the relevant stakeholders.

8. The eighth step is the monitoring and evaluation of the results. This involves the assessment of the impact of the study and the drawing of conclusions. The investigator who is responsible for the study is then responsible for the monitoring and evaluation of the results.

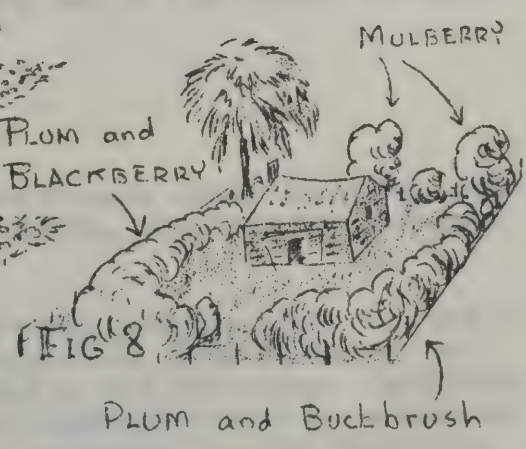
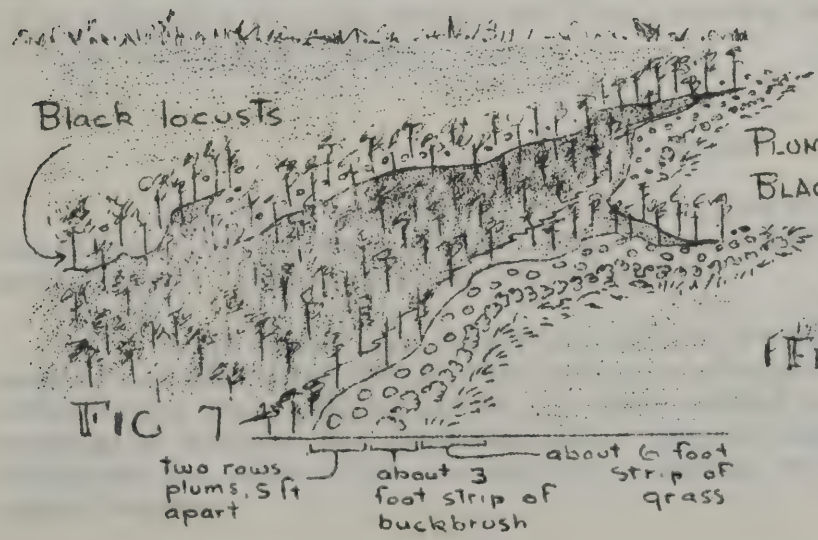
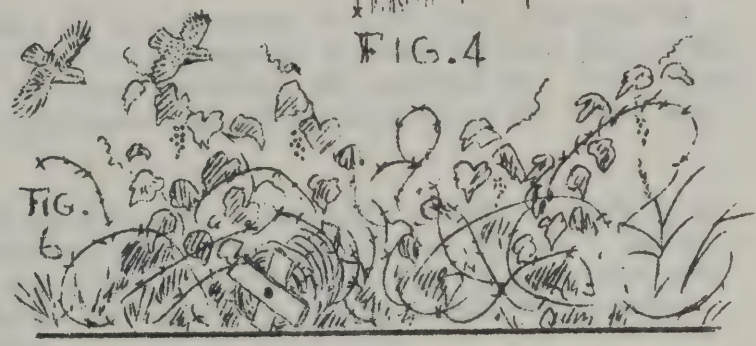
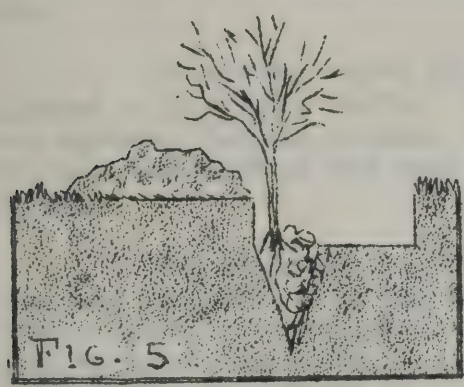
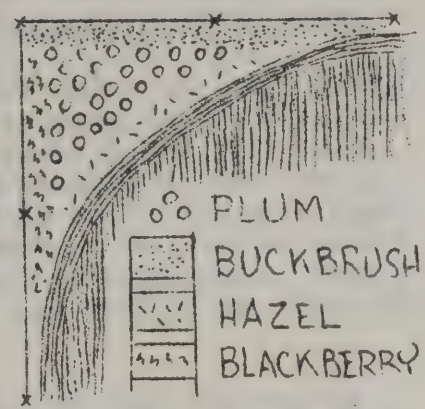
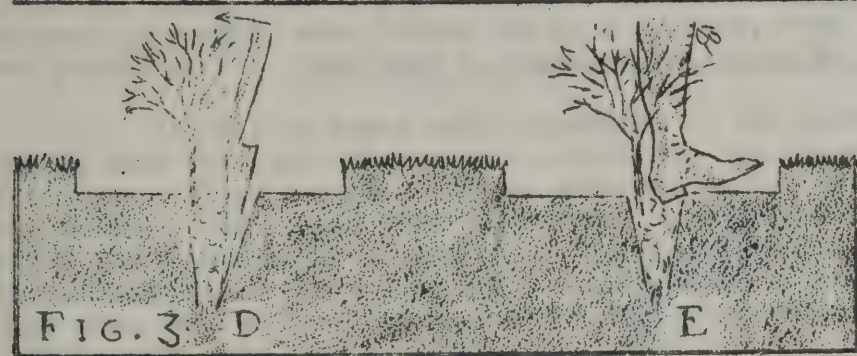
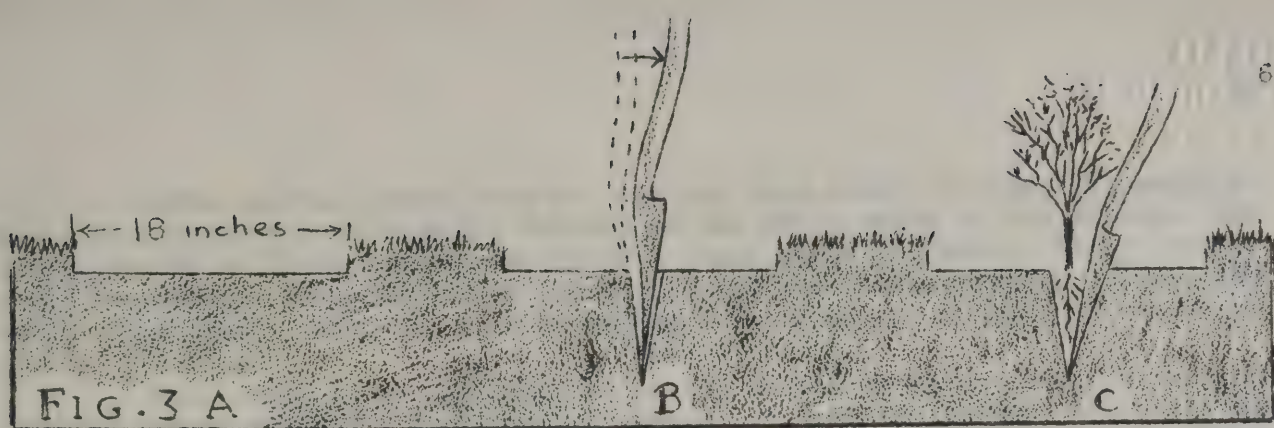
9. The ninth step is the conclusion of the study. This involves the drawing of conclusions and the reporting of the results. The investigator who is responsible for the study is then responsible for the conclusion of the study.

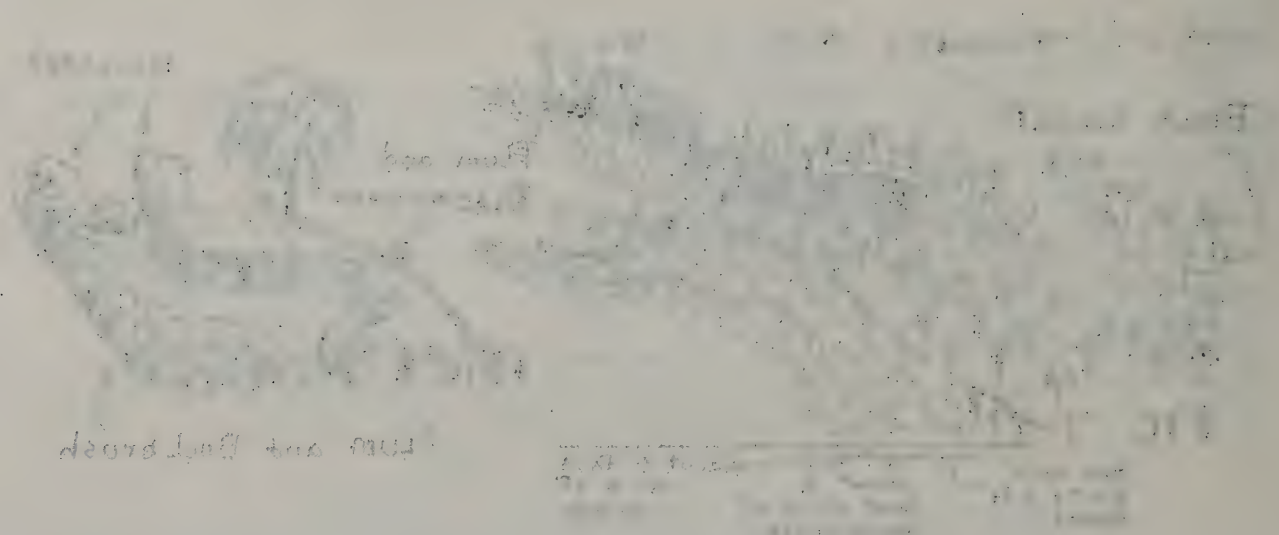
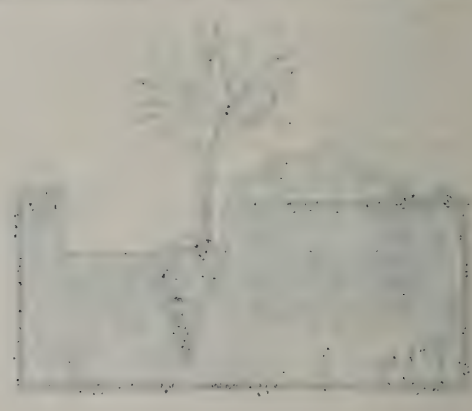
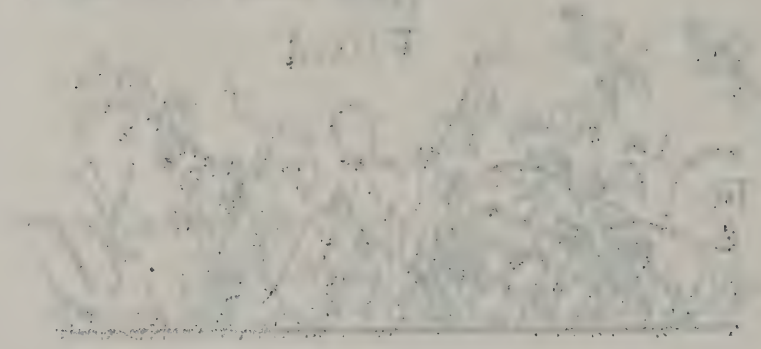
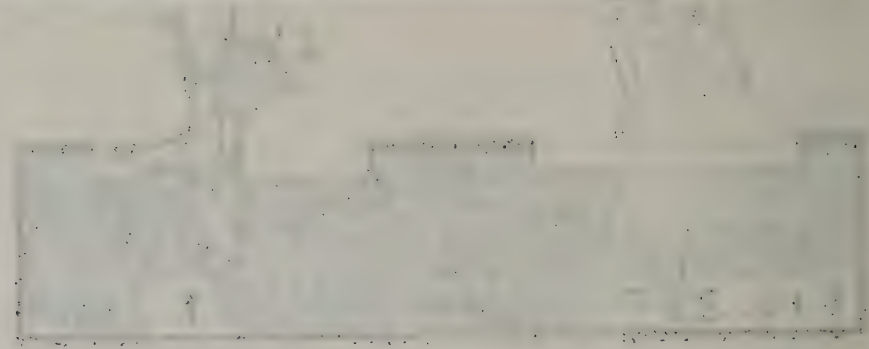
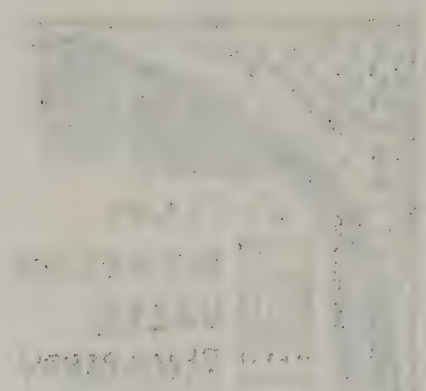
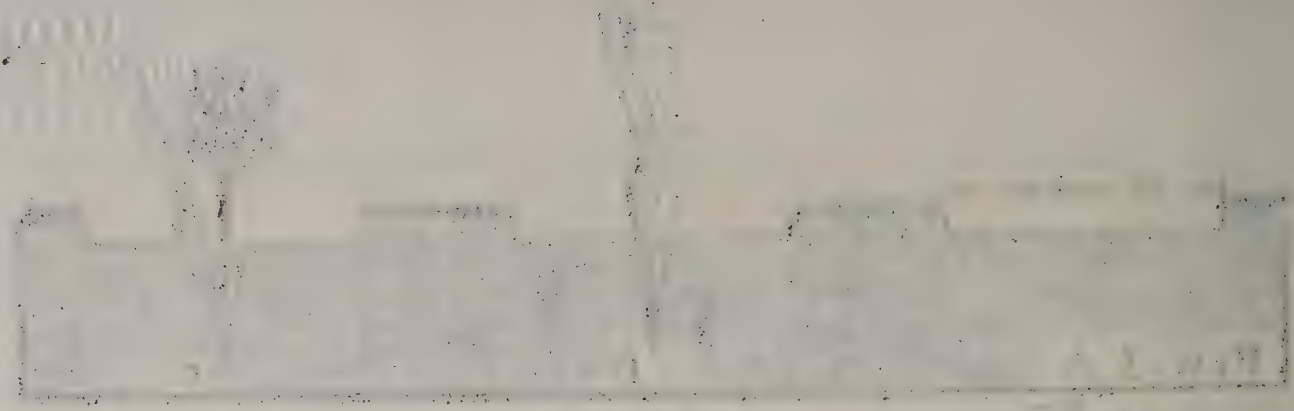
10. The tenth step is the final report. This is done by the investigator who is responsible for the study. The final report is then submitted to the relevant stakeholders.

11. The eleventh step is the final evaluation. This involves the assessment of the quality of the study and the drawing of conclusions. The investigator who is responsible for the study is then responsible for the final evaluation of the study.

12. The twelfth step is the final dissemination of the results. This is done by the investigator who is responsible for the study. The results are then disseminated to the relevant stakeholders.

13. The thirteenth step is the final monitoring and evaluation of the results. This involves the assessment of the impact of the study and the drawing of conclusions. The investigator who is responsible for the study is then responsible for the final monitoring and evaluation of the results.





After shrubs arrive from the nursery they should be removed promptly from the express office to avoid heating of the roots while in the bundle. The shrubs should be "heeled in" promptly in a shady place to prevent their drying out. They should be spread along the trench and the roots promptly covered and packed with moist earth. As soon as heeled in they should be watered thoroughly.

When ready to be planted, the shrubs should be placed loosely in a pail about one-third full of a fairly thick mixture of soil and water. All roots must be kept thoroughly wet. After the hole is made, they are removed one at a time and placed in it. Care must be taken at all times to prevent drying of roots.

It will be found most convenient if two workers engage in the planting, one to make the hole and tramp the shrub in, the other to carry the pail and set the trees. After the hole is made with the shovel the roots should be lowered, the planter taking care that they do not double up. He should hold the tree in place while the shovel is removed. The shovel may then be set in the soil three inches from the shrub and the soil pushed against the roots. The planter should then tramp the soil around the shrub, while the next hole is being made. With a little experience, two planters can usually set 500 or more trees a day (Fig. 3B-3E).

In setting trees and shrubs it is important to see that the stem is planted at the right depth. It should be deep enough so that none of the roots are exposed, but not so deep that the lower branches are covered up. This point is more important in the case of evergreens than with other kinds of trees and shrubs.

For gully control with black locusts, a spacing of about 4 feet by 4 feet may be used. This spacing requires 2700 trees per acre. Figure 7 illustrates planting for gully control and attraction of wildlife. The locusts are used to hold soil in the gully. Food- and cover-producing shrubs and grass occupy the edge outside of the gully.

When to Plant.—Spring planting is preferable to fall planting on most soils. Planting can be done as soon as the frost is out of the ground. It is advisable to order shrubs early so planting can be done before the rush of farm spring work begins.

Nesting Cover

Game birds and some of the mammals prefer open grassy areas for nesting places. On intensively cultivated farms, however, they must use pastures, hay and grain fields, or other tilled areas.

Grain fields are relatively safe as nesting places, since the crop is usually not harvested until after nesting is completed. Cattle pastures are often fairly safe nesting places provided grazing is not too heavy. Hayfields, especially alfalfa, are hazardous since quails, pheasants, rabbits, as well as songbirds are often still occupied with nesting or caring for tiny young when haying begins.

Although it is impossible to eliminate hayfield losses entirely, they can often be reduced by (1) using flushing bars, (2) exercising care in mowing where quails or pheasants are suspected of nesting, and (3) providing "bait"

nesting cover in nearby waste places. For example, grassy ditch banks, wide fencerows, roadsides, and other fair-sized untilled areas, will often attract birds away from hayfields. To be of most value, however, these "bait" nesting areas should not be burned at any time of year, because the presence of dead grass and stems of the previous season's growth is an important factor in attracting nesting birds.

Flushing Bars

A flushing bar is a device to sweep the uncut grass in front of the knife for the purpose of flushing incubating birds before the mower knife reaches the nest. When a nest is found, an "island" of hay about 10 feet in diameter should be left around the nest so the female can resume nesting without being exposed. The success of flushing bars in Illinois varies somewhat with the density of the hay fields. They are easily constructed, however, and may well be tried, especially on farms where alfalfa is grown. The type shown in Figure 9 seems most successful in Illinois.



Fig. 9

This bar is a simple device—a light bamboo pole extends out from the neckyoke and burlap sacks attached as shown—they are weighted slightly to hold them down—cross links from old tire chains are good weights—the outer end is supported by a strap from the hames.

Hayfield Nests

Game birds tend to nest in the outside thirty feet of the larger hay fields. In smaller fields, of three acres or less, they may nest anywhere in the field, but somewhat more frequently on the slopes surrounding low spots. Alfalfa fields close to ditch banks or other cover where game birds have wintered seem to furnish favored nesting places. It is often possible to discover nests by walking a couple of times around the outside of hay fields or by walking around the low places before the cutting is started. If a nest is found, a stake should be placed a few feet away and an "island" of hay left when the field is mowed. It should not be revisited, for to do so might cause the female to desert, or allow predatory animals, which frequently follow paths, to discover the nest. It is our observation that the game birds provided for as described here quite frequently bring off broods successfully.

Ditch Banks as Nesting Places

Ungrazed and unburned ditch banks make good nesting places for many kinds of game. If grassy stretches are interspersed with brush they provide both nesting and refuge cover.

Miscellaneous Nesting Places

Wide roadsides, especially of backroads, are excellent nesting places if grass and weeds are not cut before July 15. Burning at any time of year reduces the value of roadsides as nesting places.

Fencerows less than eight feet wide are undesirable because of the frequency with which these nests are destroyed by cats or other predators.

Unused roads and old railroad beds furnish good nesting cover, if not burned frequently.

Spring Burning Destroys Nests

If necessary to burn briars or rank weed growth, as is sometimes practiced in Southern Illinois before plowing, this should be done in late winter or early spring, before birds start to nest. Late spring fires often spread along fencerows and roadsides, destroying nests of quail and song birds.

Winter Food

An unfailing supply of winter food close to cover is the ideal combination for wildlife in winter. If cover is well distributed, birds and mammals are able to take full advantage of supplies of weed seeds, waste grain and greens found on most Illinois farms.

To be sure that there is always a supply of food for wildlife during times of deep snow, it is advisable to leave, near cover, small patches of uncut grain during the harvest. Corn, wheat, and soybeans are recommended.

Corn, one of the best foods, is usually fairly abundant in the fields in December, but by late winter the stalks are usually stripped and trampled by livestock. Therefore, plans should be made to have some standing or shocked corn or other grain where it cannot be used by domestic animals. Game birds feed largely on weed seeds and wild fruits, when these are available in winter, but turn more and more to waste or unharvested grain as the weed seeds become exhausted.

Feed Patches

As mentioned in the section on Refuge Cover, Evergreen Dwarf broomcorn is recommended for planting in small patches to supplement cover. Since broomcorn lacks somewhat in palatability, equal parts of other grains, such as Sudan grass, Wheatland Milo, buckwheat, and proso can be mixed with the broomcorn and planted at the rate of about 15 pounds to the acre.

Artificial Feeders

If standing or shocked corn or feed patches are available, it usually will not be necessary to resort to hopper feeding. But if food supplies are short or far from cover, feeding stations should be established in fall before the need becomes acute.



Fig. 10.

they are surprised by enemies. Corn stalks may be thrown over the top of the brush to protect the hopper from snow. Lean-to shelters may be constructed of brush or cornstalks to protect the hopper. Quails and pheasants prefer to have three sides of the shelter open and to have the feeder placed as close to the open front as possible (Fig. 12).

Corn Racks.—One of the most satisfactory types of artificial feeders is made by driving rows of spikes through a board or a piece of 2" x 2" (Fig. 10). These may be driven into the ground in or near brush. Like other artificial feeders, they require frequent attention so that the grain will not be exhausted.

Nail Keg Hoppers.—An inexpensive self feeder can be constructed as shown in Figure 11. This may be placed partially under a brush pile for protection. Quails thus have an opportunity to take refuge in the brush if

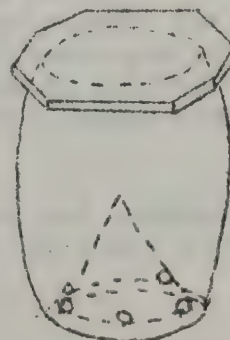


Fig. 11

Nail keg with lid attached and five 3/4" holes around the bottom.

A tin cone bent from a half circle of 18 1/2" diameter is set in the bottom to keep grain at feed holes.

Water Requirements

The water requirements of the upland game birds (except Mourning doves) are satisfied in large part by dew, green vegetation, berries, and insects.

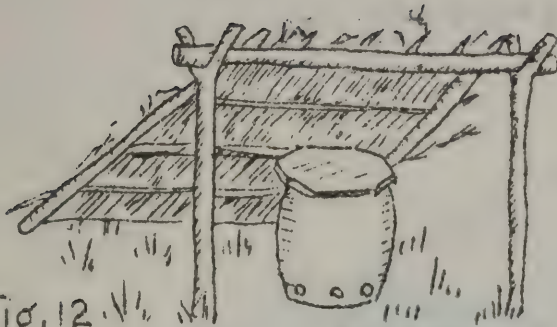


Fig. 12.

Fur-Bearers and Small Game Mammals

For this reason it is seldom necessary to provide free water. However, some of the fur-bearers spend much time in or near water, and will not be found in numbers far from stream or ponds.

As a group, fur-bearers are of especial interest to Illinois farm boys, yielding them an estimated annual income well over \$500,000 from the sale of raw pelts. Furthermore, several are important as consumers of harmful insect larvae and small rodents.

Some of the most valuable fur-bearers, especially coons and skunks, have decreased seriously in numbers in recent years, partly as the result of over-trapping. Certain others have decreased largely because of destruction of habitats. The following paragraphs suggest some ways that 4-H Club members may aid in increasing numbers of fur-bearers and small game mammals.

Care of Skins

Care in skinning, especially around the head so as not to leave large openings or cut holes, will increase the market value of pelts. The stretcher should be just large enough to take all of the slack out of the skin. The skin should be neatly tacked to the stretcher around the open end. Pelts are graded on size and quality. Prime pelts are gray rather than dark bluish on the skin side and the fur is of velvety texture. Useful hints on grading and preparation of skins for the market can usually be obtained from responsible buyers and fur houses.

Muskrats

Banks of creeks and ditches have potentially high value for the production of minks, muskrats and other fur-bearers. Perhaps the most essential practice of muskrat management along streams is to allow streambanks to go ungrazed. Fur-bearers will all but desert streams whose banks are closely cropped by livestock. As was mentioned above, ungrazed ditch banks also offer good nesting places for game birds. Moreover, ungrazed ditches do not fill up with soil and debris as rapidly as do grazed ones. Corn or food strips along ditches furnish food both for game and fur-bearers.

If protected from grazing and not seriously over-trapped, ditches even in highly cultivated prairie sections can yield a profitable annual crop of fur.

Coons

Although coons occasionally den underground, they are dependent mainly on hollow trees for homes. Destruction of den trees by woodcutters and short-sighted hunters, no doubt, has greatly reduced numbers of these valuable fur animals in recent years. Hollowing out of large trees by decay is a slow process. If all den trees are removed from a woodlot, it may require several years before others take their place. Smoking out, cutting of den trees by hunters (now illegal), and other practices that fail to give the animals an even chance should cease in the interest of preserving these valuable animals.

It was noted that the material was not properly stored and that the material was not properly stored and that the material was not properly stored.

At the same time, the Government has been making a study of the problem of the forest lands of the country. It has been found that the forest lands are being rapidly depleted, and that the Government is unable to protect them. The Government has decided to take steps to protect the forest lands, and to make them available for the use of the people. It has decided to set aside certain areas as national parks, and to make them available for the use of the people. It has also decided to make the forest lands available for the use of the people, and to make them available for the use of the people.

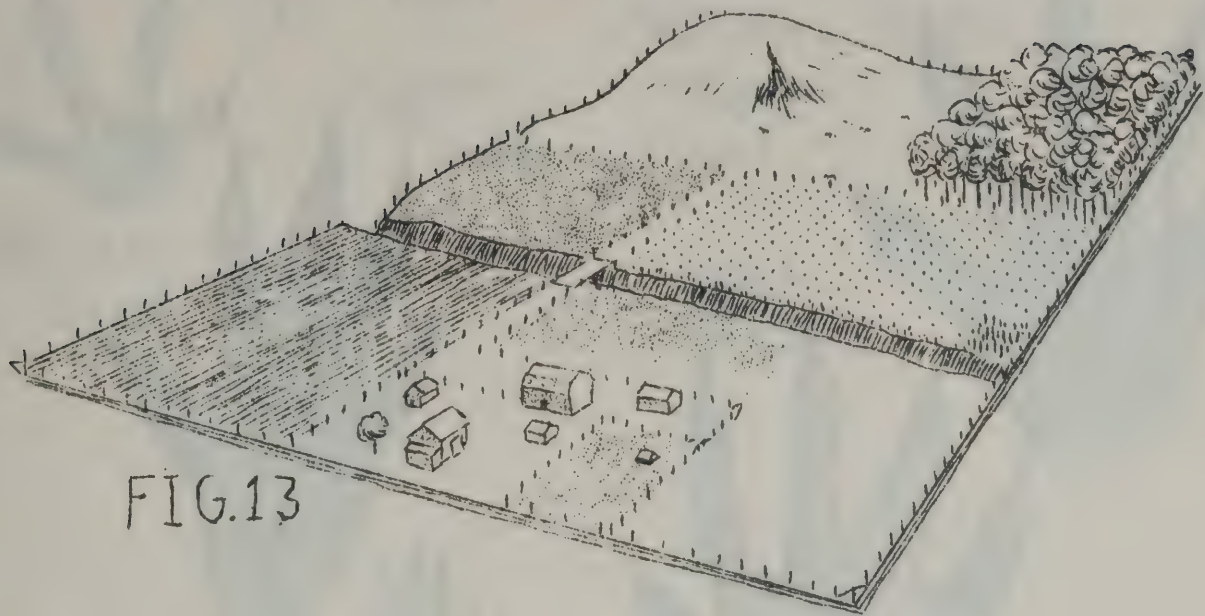


FIG. 13

The scene below (Fig. 14) illustrates how waste and eroded places on the farm shown above (Fig. 13) can be used to produce shrubs and grass that bind soil and attract useful wildlife. Ungrazed woodlots and unburned ditch banks help to increase game, fur-bearers and song birds. Corn shocks left in the field corners increase cover and add to the winter food supply.

Bird's eye view of two farms

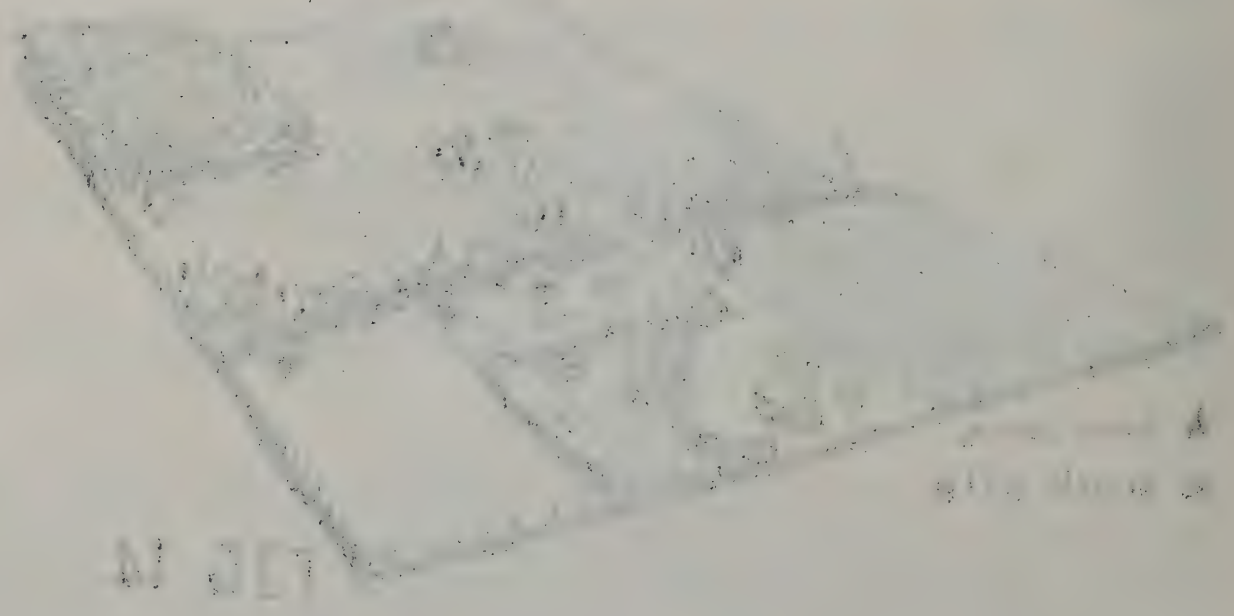


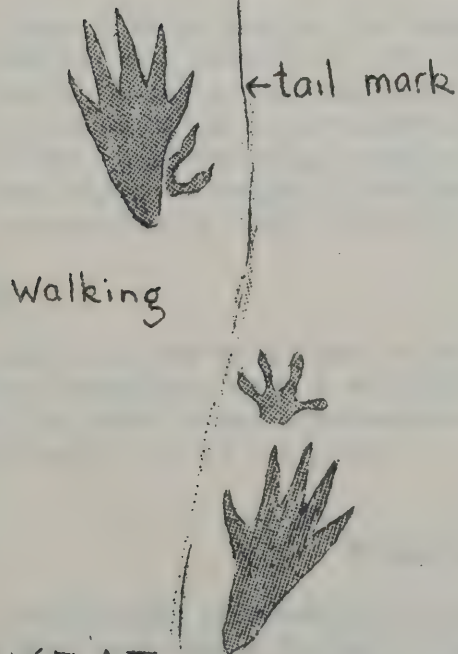
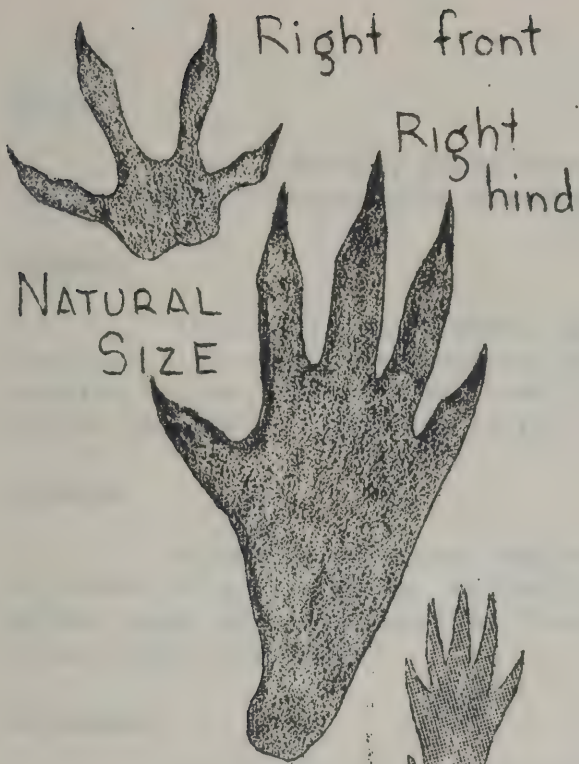
▲ corn shock
X brush pile

FIG. 14



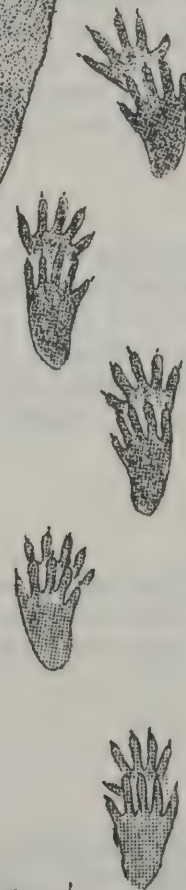
The map shows the course of the river from its source in the north to its mouth in the south. It also shows the various branches and tributaries of the river. The map is a valuable historical document, showing the course of the river as it was in the early years of the settlement. It is a clear and accurate representation of the river and its surroundings, and it is a valuable addition to the collection of historical maps.





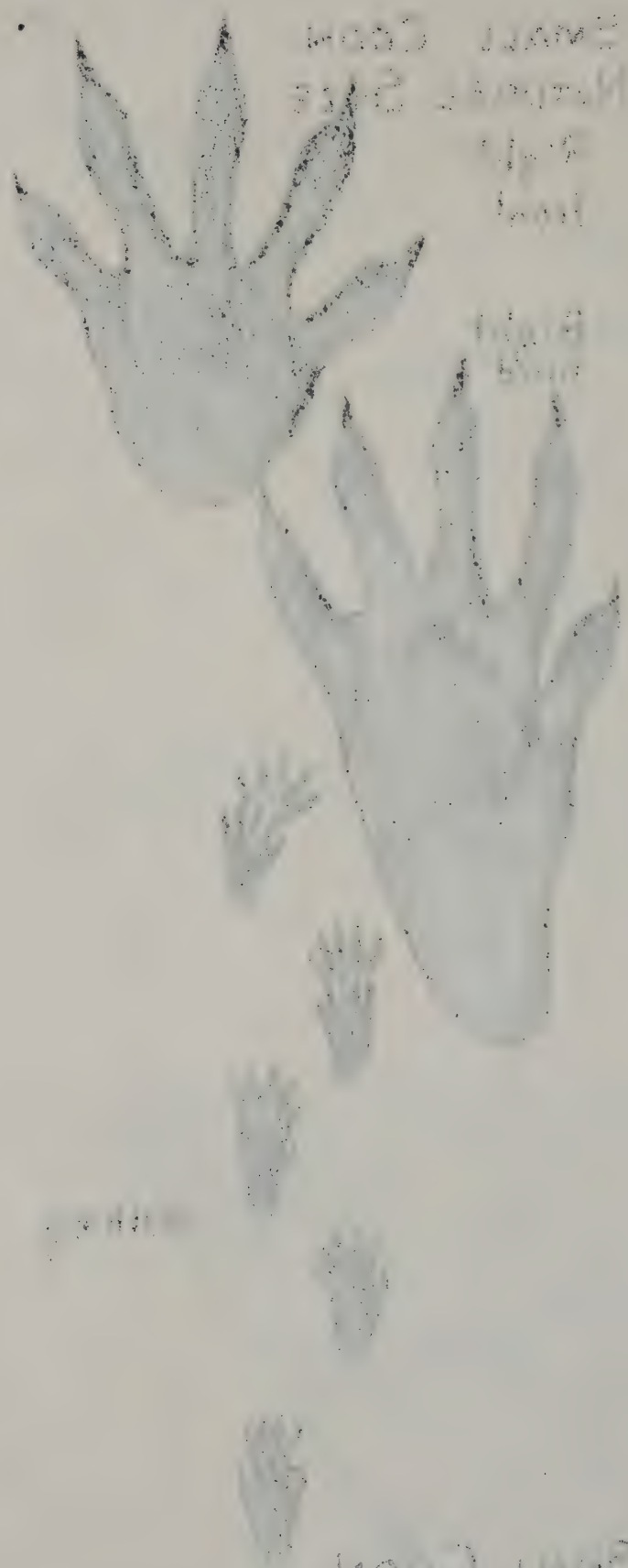
MUSKRAT
FIG. 15

SMALL COON
NATURAL SIZE



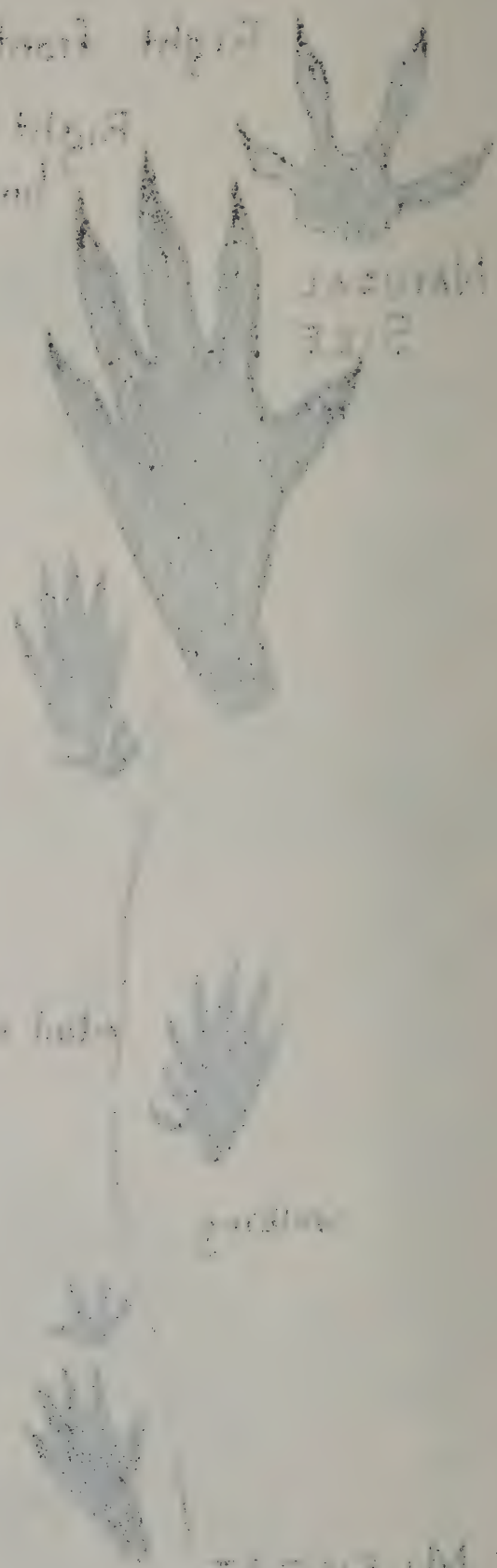
SMALL COON
FIG. 16

Small Coon
Natural Size
Right Hand



Small Coon
FIG 12

Right Hand
Natural Size
Right Hand



MUSK RAT
FIG 13

Minks

Like muskrats, minks benefit from unburned and ungrazed ditch banks which offer protection from enemies.

Skunks

In recent years, these valuable fur-bearers have become scarce in many parts of Illinois. The practice of digging out skunk dens by trappers, now prohibited by law, has no doubt been instrumental, especially since the female skunks usually den together in fall and winter.

Possums

Possums, like coons and squirrels, benefit by having hollow trees and logs available for homes. Probably all animals that frequent woodlands benefit by the cover and food supplies found in woodlands from which grazing is partly or entirely eliminated.

Squirrels

Both fox and gray squirrels are reduced in numbers by destruction of hollow trees and hollow limbs. If these animals are desired in the home woodlot the squirrel trees should be left standing whenever possible. Feed racks containing ear corn placed in woodlots benefit squirrels during winter when snow is deep. Open corn shocks near woodlots benefit squirrels as well as quails and rabbits.

Rabbits

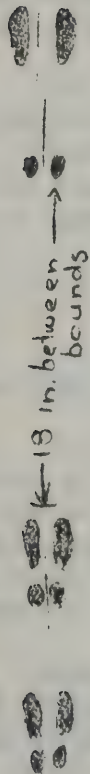
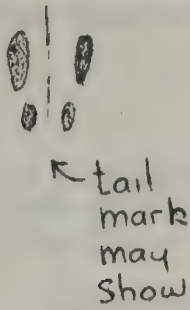
Since rabbits thrive best where a variety of cover is present, management of cover for the benefit of other wildlife usually benefits rabbits also. Hedges, thickets, brush piles, and rows of corn shocks are used for travel lanes and cover. Old tiles or hollow limbs placed along hedges provide protection. Like many other small mammals, rabbits make extensive use of woodchuck burrows. Standing corn close to hedges, feed patches, and fresh, pruned apple limbs are important as sources of food in winter.

Woodchucks

Although the woodchuck is not classed as a game or fur animal, it is of considerable importance from a wildlife standpoint, because its dens are used extensively by rabbits and fur-bearers. When not actually proving a nuisance, woodchucks should not be molested.

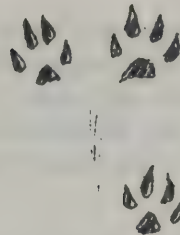
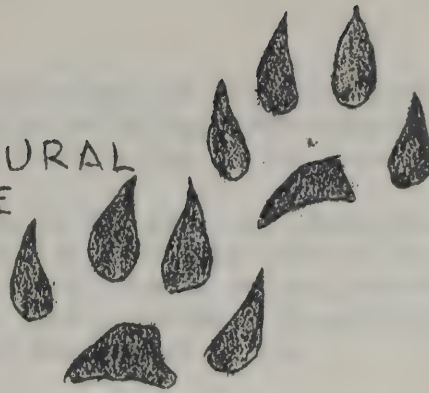
Making a Cover Map

In planning improvements or keeping records of game and fur-bearers, it will often be found useful to make a map of the home farm. The cross-section sheets in the back of the manual are for this purpose. This map should show the location of buildings, fields, fences, hedges, ditches, permanent pastures, woodlots, etc. Planned improvements should be indicated on the map with a colored pencil.

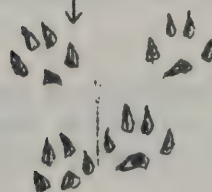


WEASEL
FIG. 17

NATURAL
SIZE

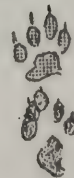
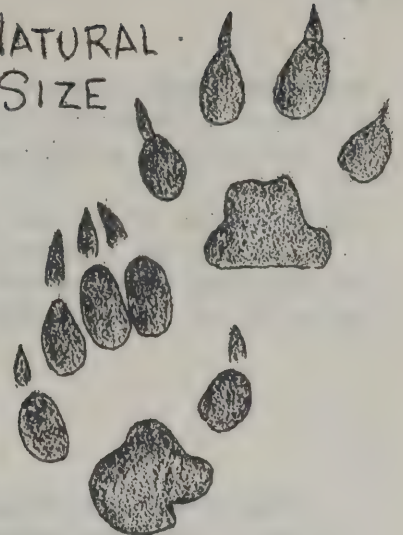


12 inches between
each bound



MINK
FIG. 18

NATURAL
SIZE



walking



WOODCHUCK
FIG. 19

A duplicate map may be made on the second cross-section sheet and used as a record for observations on wildlife. For example, if a covey of 9 quails is seen on September 15, it can be recorded on the exact location as 9Q-9/15/37.

Besides being noted on the map, the observation should be recorded on the game and fur-bearer record sheet in the back of this manual. As daily observations are recorded, it will become evident which fields are being used by game and fur-bearers and for what purposes. These observations will be of value in writing reports and making management plans.

Wildlife Census

Keeping yearly records of kinds and numbers of game and fur-bearers on the farm will be of interest, especially when a management program is undertaken, since these indicate the results of various practices.

Useful records of the numbers of game birds can be obtained from observations during work in the fields. Late summer or early autumn before the hunting season is perhaps the best time to record estimates of numbers of quails, pheasants, prairie chickens, or Hungarian partridges. Remember that the game birds may range over two or more fields or hedges, and try to avoid counting the same birds more than once.

Rabbits, squirrels, and the fur-bearers are more difficult to census than birds and probably will not be undertaken until considerable experience is gained. Tracks in the snow or mud show the kinds of animals present. Tracks of each of the common Illinois fur-bearers are shown in Figures 15 to 26. These should be learned for use in identifying animals or in trapping.

Predatory Birds and Mammals

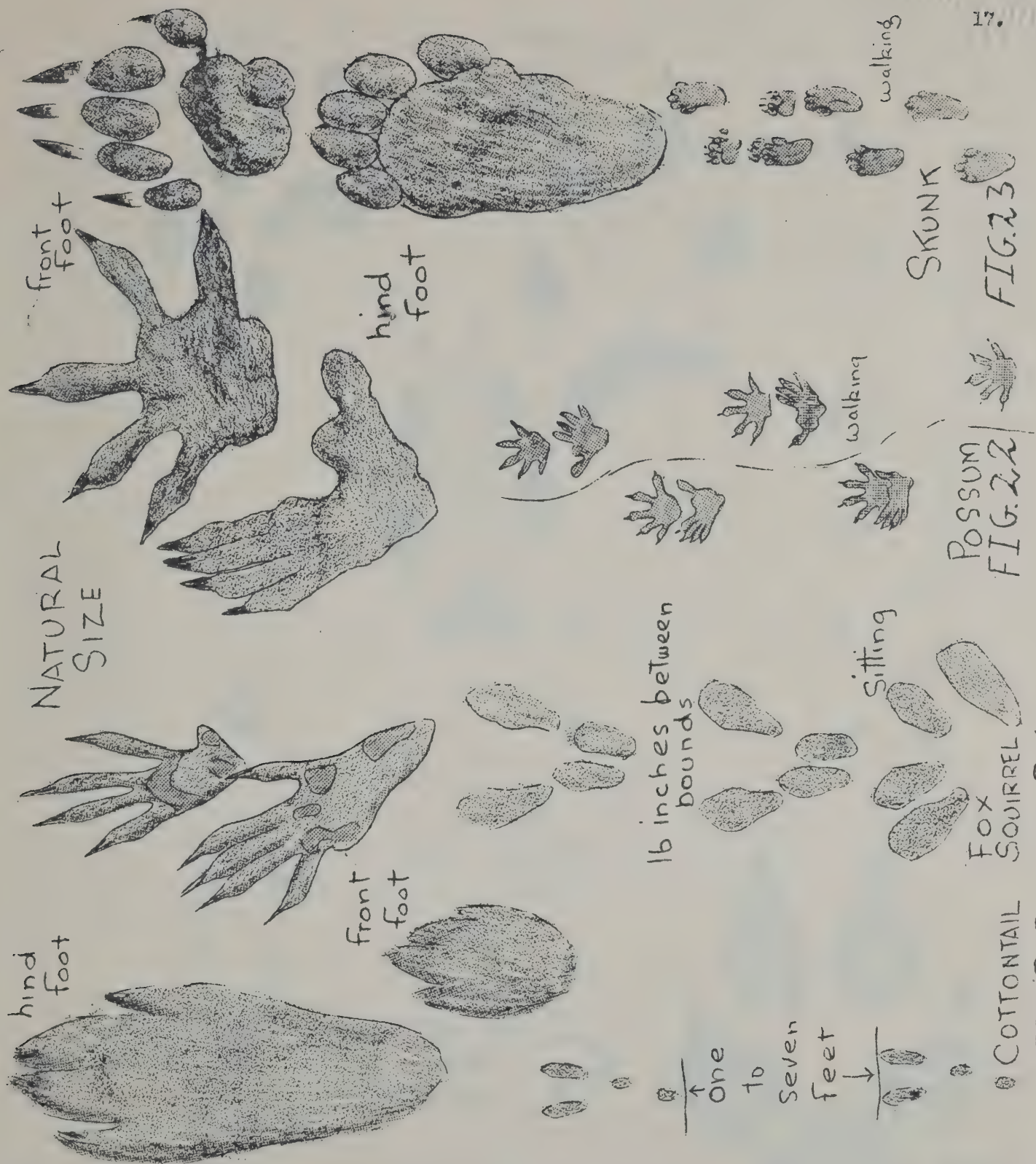
Hawks and Owls^{1/}

The control of hawks and owls as a game management measure has received much discussion. It is evident that some kinds of hawks and owls do take wild game birds and mammals at times. But careful studies have shown that where cover is adequate these losses seldom prove serious, and where cover is inadequate game usually moves off in search of more favorable surroundings, even if predatory birds are not present.

Game suffers from diseases and parasites just as do domestic animals, and also frequently meets with flight accidents, shot wounds and other injuries. Birds eaten by hawks and owls are often weak, crippled, or aged individuals, the loss of which is not serious.

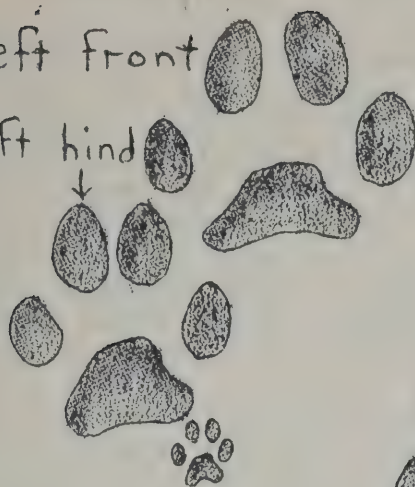
Detailed food studies by the United States Bureau of Biological Survey show that most common hawks are valuable to the farmer from the standpoint of control of crop pests. Popular opinion and recent investigation of the feeding

^{1/} Leaflets on food habits and identification of hawks may be obtained without cost by writing the National Association of Audubon Societies, 1775 Broadway, New York, N.Y.

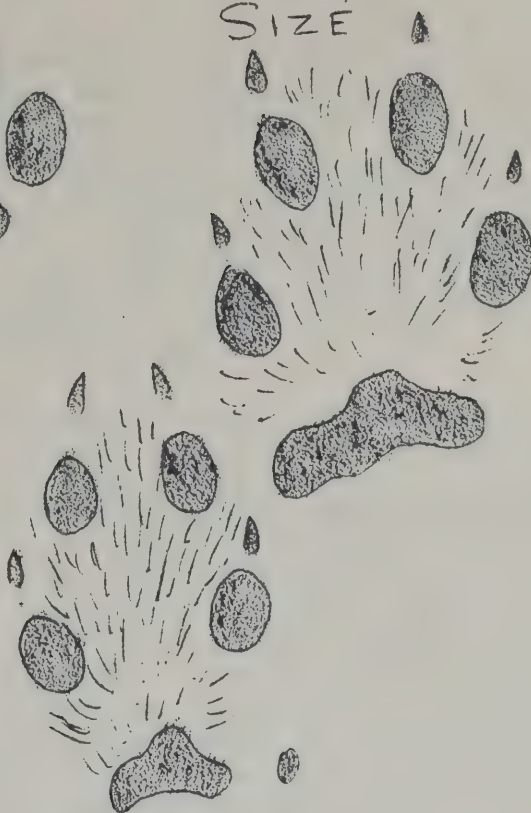


NATURAL SIZE
Left front

Left hind



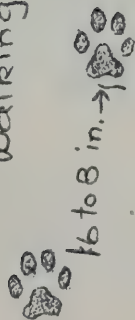
NATURAL SIZE



Trotting

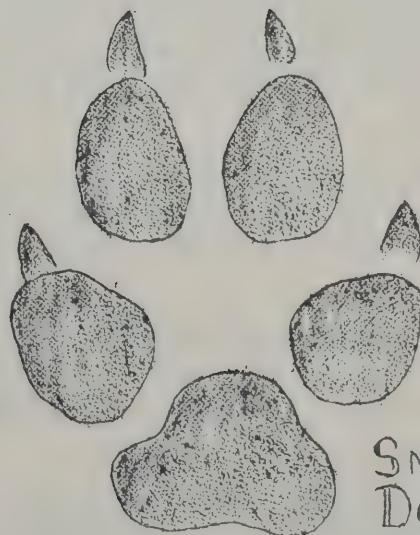
Galloping

Walking



Trotting

Tail may brush snow



SMALL DOG

CAT
FIG. 24

Fox
FIG. 25

FIG. 26

habits of hawks differ somewhat. A study made in recent years in Ohio revealed the fact that mice and other small mammals constitute about 35.7% of the food of all hawks; poultry and game birds, 4.8%; other birds, 16.9%; other vertebrates, 7.4%; insects, 30.3%; and miscellaneous matter, 4%. With less than 5% of their food poultry and game, it is hardly fair to condemn all hawks. It seems advisable, then, that control of hawks or owls be directed only at individuals that are doing harm on poultry farms or other protected areas. In the wild, except when Cooper's hawks or great horned owls are especially troublesome, the predatory birds can usually safely be left unmolested to carry out rodent destruction and useful culling of weak, crippled or inactive game.

Identification of hawks, it must be admitted, is difficult as they fly over the fields. Closely related species sometimes show considerable resemblance, particularly among the young birds. The diagrams on the following pages show the characteristic markings of the most common hawks found in this part of America. Study these diagrams so as to observe the relative portions between the length of the wings and the length of the tail. If the bird being observed is in flight, one can also note whether the wings are broad or narrow, rounded or pointed at the tips, whether there is a "wrist-mark" or dark blotch near the bend of the wings, whether the tail is square-ended or rounded, notched or forked, long or short, spread fanlike or held straight and closed, and, of course, all conspicuous color masses can be noted. Other identification observations are the movements of hawks. Is its flight marked by alternate periods of flapping and sailing; is it rapid and direct, leisurely or zig zag quartering? Does the bird soar with widely spread almost motionless wings or does it occasionally hover in one spot with rapidly vibrating wings? The sparrow hawk's hovering in one spot distinguishes it from the sharp-shinned hawk.

Following is a list of hawks more or less common to Illinois with their general characteristics:

Mouse Hawks.--This group soar in circles, perch in the open, are large, slow in flight, have wide wings and a short, broad tail. The common hawks in this group are broad-winged hawks, red-shouldered hawks, red-tailed hawks and rough-legged hawks. The last two named depend upon rats and mice for over one-half of their diet.

Falcons.--These are rapid in flight, have long pointed wings, fly with deep wing strokes, and are streamlined in shape. The small sparrow or grass-hopper hawk is the most common in this group. It is frequently seen perching on telephone poles or wires along traveled roads.

Bird Hawks.--This type flap and glide in flight, perch under cover, are small in size, have a long tail, short blunt wings and are direct and rapid in their pursuit of prey. In this group are the cooper's hawk or chicken hawk, and the sharp-shinned or small blue darter.

Marsh Hawks.--This is sometimes known as the mouse hawk. It has a low coursing flight, long wings and tail and high wing angle. It is commonly seen beating slowly across fields and meadows a few feet above the ground. Its white rump is a useful field mark.

SHORT-WINGED *or* BIRD-HAWKS

GOSHAWK



COOPER'S HAWK



SHARP-SHINNED HAWK

BROAD-WINGED *or* RODENT-HAWKS

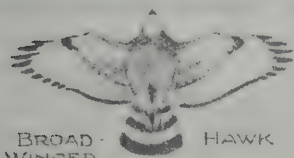
ROUGH-LEGGED HAWK



RED-TAILED HAWK

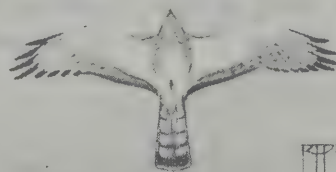


RED-SHOULDERED HAWK



BROAD-WINGED HAWK

MARSH HAWK



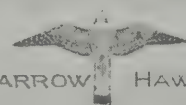
K. PETERSON

SHARP-WINGED
FALCONS

DUCK HAWK



PIGEON HAWK



SPARROW HAWK

Fig. 27

Fur Bearers

Destruction of game bird nests, especially those in exposed locations, such as along paths or narrow fencerows, can occasionally be charged up to the smaller fur-bearing animals. This group, however, undoubtedly much more than makes up for its misdeeds by yielding an annual fur crop, and by destroying numerous small rodents, insects and other crop enemies. Provision of ungrazed ditch banks and unburned side roads as bird nesting sites helps to prevent destruction of nests by fur-bearers.

Cats

Field-hunting cats are a menace to ground-nesting and take a heavy toll in nearly every community. Farm families in sympathy with useful bird life will not keep more cats than really are needed to check house mice or rats. Homeless cats should be disposed of humanely.

Bird Nesting Boxes

Bluebirds, wrens, martins, and other box-nesting birds can be attracted readily by suitable bird houses. Various types are described in Farmers' Bulletin 1456.

To avoid competition with English sparrows and starlings, some of the houses should be mounted on poles and fence posts at some distance from buildings. These should be deep enough to prevent crows from molesting eggs or young. All bird houses should be protected from cats by using a tin or wire guard beneath the house.

Habits of Wildlife

Enjoyment of the common birds^{1/} and animals is increased greatly by learning to identify them. Several Department of Agriculture Bulletins describe birds and animals and give accounts of their habits. Books on wildlife can be found in nearly all school and public libraries. Knowledge of the habits of wild creatures likewise adds daily interest to conservation activities. Furthermore, individual observations, especially on the response of birds and mammals to various management measures, will be valuable to all others engaged in conservation work.

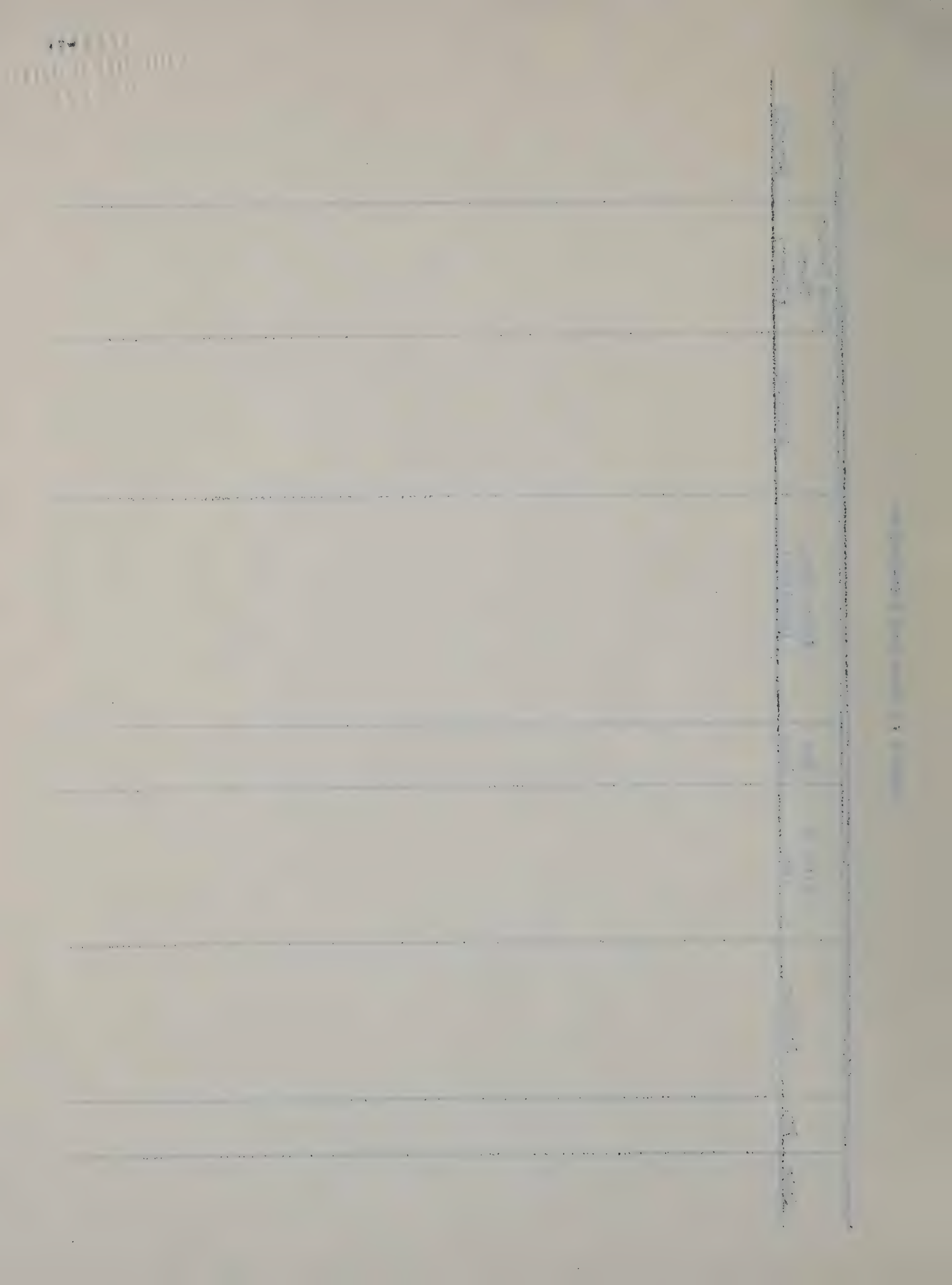
^{1/} Field bird books, containing colored pictures, especially Reed's Bird Guides, are useful in identifying birds. Flower, tree, and insect guides are also available in this series. Similar booklets may now be obtained at some of the larger 5 and 10 cent stores.

Record of Game and Fur-Bearers

[illegible]

Record of Game and Fur-Bearers

[illegible]



Suggested Seasonal Conservation Activities for 4-H Members

Winter

1. Write for U. S. Department of Agriculture pamphlets on birds and mammals. (See list of publications in back of manual.)
2. Obtain a list of shrubs and trees for wildlife plantings from the Illinois Department of Conservation, Springfield.
3. Keep notes on use by wildlife of hedges, brush piles, low areas, and cornfields on your home farm.
4. Determine what can be done to improve your farm for game, fur-bearers and winter birds.
5. Make a map of your farm, showing where cover and feed patches can be planted and brush piles or corn shocks left.
6. Pile pruned apple limbs for rabbit food and shelter.
7. See that food is available at all times at feeding stations.
8. Keep notes on your observations of birds and mammals, especially in winter.
9. Estimate the number of each kind of game birds that survived the winter on your farm or on your section. Keep this record and repeat next year. This will give you an estimate of the carrying capacity of your farm for game.
10. Give a report on your conservation activities at a 4-H Club meeting.
11. Learn to identify tracks of fur-bearers.
12. Build bird houses. (See list of publications.)

Spring

1. Plant a corner, gully, or other area to shrubs for game cover. (Cover-producing shrubs are furnished free, except transportation charges, by the Illinois Department of Conservation for wildlife plantings.)
2. Plant wild grape or bittersweet vines close to piles of old fencing, down trees, or brush piles.
3. Plant feed patches.
4. Pile hedge trimmings near wild grape vines growing in untilled spots, so vines will overrun the brush and create cover "tangles" useful for quails and other wildlife.
5. Continue feeding at stations in early spring, until no longer needed.

[illegible]

6. Put up bird houses.

7. Look for game bird nests in hayfields. Leave a hay "island" ten feet in diameter around the nest when mowing.

8. Make a flushing bar.

Summer

1. Delay roadside and ditch-bank mowing until after July 15.

2. Protect nesting areas from needless burning (all year).

3. Leave small patches of uncut wheat or rye near cover for winter food.

4. Save a few bundles of small grain for winter birds.

5. Cut small grain stubble as high as possible.

6. Observe habits of birds and mammals.

7. Estimate the number of quails and other game birds on your farm in late summer or early fall. Keep this record and compare with next year.

Fall

1. Determine cover and food conditions and decide on your program for care of wildlife during the winter.

2. If needed, establish winter feeding stations in late fall. Be sure they are located near good cover.

3. Leave until spring unplowed strips of small grain stubble near hedges.

4. Pile hedge trimmings or other brush in good sized open heaps to improve cover for quails and rabbits.

5. Place open corn shocks near thin cover areas.

6. Protect nesting areas, such as sides of back roads and ditch banks, from needless burning.

7. Leave until spring one or two rows of unhusked corn standing where it will be available to wildlife.

Publications

1. Farmers' Bull. 1719, Improving the Farm Environment for Wildlife. U. S. Dept. of Agriculture, Washington, D. C.

2. A Game Survey of the North Central States. Obtainable from Izaak Walton League of America, Merchandise Mart, Chicago, Illinois. 20 cents.

- LIBRARY
UNIVERSITY OF ILLINOIS
URBANA
27.
3. Extension Bull. 186, Management of the Bobwhite Quail in Iowa. Iowa State College, Ames, Iowa.
 4. Circular 477, Forest Planting in Illinois. Agricultural Experiment Station, Urbana, Illinois.
 5. Suggestions for Pheasant Management in Southern Michigan. Department of Conservation, Lansing, Michigan.
 6. Winter Feeding at Faville Grove 1935-36. Game Management Division, University of Wisconsin, Madison, Wisconsin.
 7. Farmers' Bull. 1759, Game Management on the Farm. U. S. Dept. of Agriculture, Washington, D. C.
 8. Miscell. Publ. 159, Winter Feeding of Wildlife on Northern Farms. U. S. Dept. of Agriculture, Washington, D. C.
 9. Bull. 19, Muskrat Propagation in Ohio. Ohio Dept. of Agriculture, Columbus, Ohio.
 10. A Simple and Economical Method of Producing "Refuge Cover" for Quail. (Mimeographed circular, now unavailable). H. L. Stoddard, Thomasville, Georgia.
 11. Habitat Requirements of Stream Dwelling Muskrats. Zoology Dept., Iowa State College, Ames, Iowa.
 12. Separate No. 823, 1919 Yearbook, Trapping on the Farm. U. S. Dept. of Agriculture, Washington, D. C.
 13. Farmers' Bull. 912, How to Attract Birds in the East Central States. U. S. Dept. of Agriculture, Washington, D. C.
 14. Farmers' Bull. 630, Some Common Birds Useful to the Farmer. U. S. Dept. of Agriculture, Washington, D. C.
 15. Farmers' Bull. 1456, Homes for Birds. U. S. Dept. of Agriculture, Washington, D. C.
 16. Organization of Sportsmen's Clubs. State Dept. of Conservation, Springfield, Illinois.

Ask your Farm Adviser for Report Blanks for the 4-H Conservation

Activity.

UNIVERSITY OF ILLINOIS-URBANA
639Y31940 C001
ILLINOIS CONSERVATION ACTIVITIES MANUAL



3 0112 017702744

Printed in furtherance of the Agricultural Extension Act
approved by Congress May 8, 1914. H. P. Rusk, Director
Extension Service in Agriculture and Home Economics
University of Illinois, Urbana

rerun May 1940
ES1020